ALFEBA
PROCESSING SOLUTIONS

SEQUOIA MOSAIC 3000: PERSO (PERSONALIZATION PLATFORM)

Functional description

User's manual

Version 2.0

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Content

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Chapter 1. About the document

This chapter contains the next sections:

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1.1. Purpose of the document

This document describes the functionality of the SM 3000 PERSO, SM 3000 personalization platform, and it place in the SM3000 processing solutions. This document was prepared for users of the SM 3000 PERSO.

1.2. How to use this manual

The manual is designed to show the main functions of the Platform and to give a short description of the SM3000 PERSO for users.

The terms, abbreviations and useful references to other documents about the SM 3000 system are provided at the final part of the document.

Terms and Abbreviations - a glossary of terms commonly used in the card processing and electronic funds transfer industry.

To know how to use the ALFEBA documentation, to find information about the register structure and graphic tags, used in the documentation, see the Manual 200100 «Documents register».

1.3. Classification

This document has been classified as External.

1.4. Document sheet

400001

1.5. Document contacts

In the case of questions or proposals about information presented in this document, you can contact Alfeba's Documentation Division by email doc@alfeba.com, by phone +598 2 208 31 42 or by mail, using the address: Av. Agraciada 2770, Montevideo, 11823, Uruguay.

1.6. Document history

Version	Date	Modification	Notes	Authors
1.0	17.07.2000	-	Init. Version	Natalia Bogorodskaya
2.0.	24.09.2020	s/w version released	Version released	Natalia Bogorodskaya

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Chapter 2. About SM3000 PERSO

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2.1. General information

In this chapter we provide the principal information about SM3000 PERSO of the Sequoia Mosaic 3000.

2.2. About SM3000 PERSO

SM 3000 PERSO is a cards data preparation and personalization system, that works with personalization equipment like a NBS or Entrust DataCard personalization platforms, using Thales, Futurex or SafeNet HSMs for the necessary security jobs.

SM3000 PERSO stays between the Banking core or Back-office system and personalization equipment and performs the following tasks:

- Cardholder profile generation;
- Cards data preparation for the personalization;
- Secret parameters generation;
- Applet creation for the upload to the chip;
- PIN - generation;
- Other technical issuers.

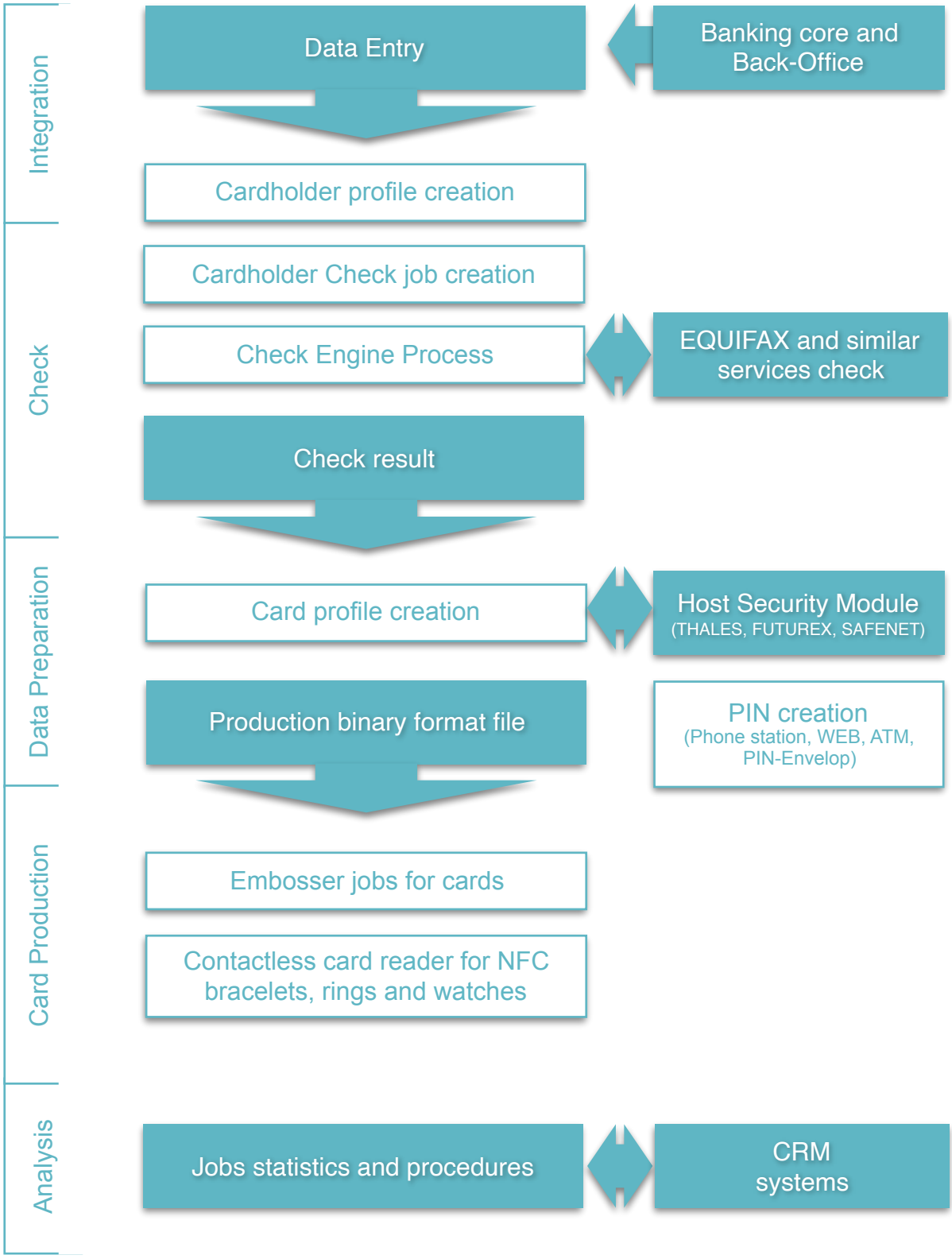
SM3000 PERSO supports personalization jobs for all kind of the payment cards, including mag stripe, contact/ contactless NFC, virtual cards, bracelets, rings and watches.

SM3000 PERSO supports multiplicational scenario, that allows to create and upload several applications to the chip, including payment, ID, bonus, and others applications.

The built-in core of automated workflow control ensures that all required activities are completed at a specified time. In addition, SM3000 PERSO audits all activities, collects and stores statistics on the executed jobs.

The SM3000 PERSO workflow is demonstrated on the Picture 2.2.0.0.

Picture 2.2.0.0. SM3000 PERSO workflow



As it shown in the Picture 2.2.0.0. the business processes are realized using the ISO 9000 standards and P-D-C-A algorithm and PCI DSS and PIN DSS recommendations.

The SM3000 PERSO is designed, using ISO 9000 standards and P-D-C-A ISO algorithm and based on the PCI DSS and PIN DSS requirements..

The Integration step could be done with SM3000 PAYMENTS platform or by integration with the Banking core or external Back-Office system of the financial institution.

To read more about SM 3000 PAYMENTS possibilities look through the Manual # 500001 SM3000 PAYMENTS: Functional description.

2.3. SM3000 PERSO functionality

SM3000 PERSO supports:

- Cardholder profile check;
- Data preparation jobs for the personalization;
- PIN generation jobs;
- Card production personalization jobs;
- Statistics jobs.

2.4. Modern card industry business cover

The SM3000 PERSO is developed to cover the needs of:

- Chip bureau, Certified vendors, Third party processors/ Member service providers of Visa, MasterCard and other international and national payment systems, which work under the cards personalization and data preparation jobs;
- Banks - members of MasterCard, VISA and other international and national payment systems;
- Payment operators and facilitators;
- Retail networks,
- Telecommunication companies.

2.5. Rentability of usage

Financial institutions that use SM3000 PERSO have seen significant reductions in card production delays, called by the personalization centers capacity. In many cases, SM3000 PERSO users have recouped their software, hardware and additional staff and out-sourcing costs in less than a year.

On the other hand SM3000 PERSO users can meet customer requirements more promptly, to service customer at the moment of his presence at the ban, financial institution, retail shop or telecommunication company.

2.6. SM3000 PERSO structural parts

The SM3000 PERSO has five main internal structural parts:

1. Integration;
2. Cardholder Check;
3. Data preparation;
4. Card production;
5. Management (jobs) statistics.

To learn more about parts see sec. 3.2. The platform architecture.

2.7. SM3000 PERSO integrations

Developed from the national processing center solution SM3000 PERSO has traditionally a wide possibilities of the integration both with internal and external applications:

Internal ones:

- SM3000 EPS,
- SM3000 IAP,
- SM3000 PAYMENTS,
- SM3000 CRYPTO.

External ones:

- External back-office processing cores: Way4, SmartVista, TransactPro, Compas+, Base24 (GenCard).
- Banking accounting systems (banking cores): BankXXI Century, TEMENOS, BANKSYS, others.

2.8. The place of SM3000 PERSO in the SM3000 processing solutions

SM3000 PERSO is a personalization platform, which can be implemented with external authorization processing platforms, accounting core and back-office systems.

The place of the SM3000 PERSO you can find in the Picture 2.8.0.0.

Picture 2.8.0.0. SM3000 processing solutions structure

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SM3000 EPS - is a on-line authorization processing core, developed for the Third party processors, national processing centers and banks - members of payment systems MasterCard, VISA and others. The Core processes cards issuing and acquiring banking programs, ATMs and POSs networks, has direct gateways to VISA, MasterCard and other processing systems. The full functional description of the SM3000 EPS see in the Manual SM3000 EPS. Functional description. The Core has integrations with core banking systems, TEMENOS, BANKXXI, DIASOFT and others banking accounting solutions.

SM3000 RISK - is a core based fraud prevention platform for the issuing and acquiring cards programs, based both on

- host parameters filters and
- on-line decisions making based on transactions history.

The full functional description of the SM3000 RISK see in the Manual SM3000 RISK. Functional description.

SM3000 PAYMENTS - is a platform for consumer credits, on-line payments for credit, MO/TO transactions by credit, membership programs, bonus and discounts management for cardholders and merchants. The full functional description of the SM3000 PAYMENTS see in the Manual SM3000 PAYMENTS. Functional description.

SM3000 IAP - is a e-commerce solution that enables you to manage the payment transactions of your business. The platform supports multiple payment methods and integration methods.

SM3000 CRYPTO - is a full platform for the crypto currencies issuing and acquiring, including Merchant profile and mobile applications for users, crypto change offices and crypto stock exchange software, on the government and private level of the implementation. The full functional description of the SM3000 CRYPTO see in the Manual SM3000 CRYPTO. Functional description.

Between the mentioned platforms of the SM3000 processing solutions are local products, like a software for POS terminals (NEW POS and others), self-service terminals etc. Functional description of these products can be provided on demand.

Chapter 3. Platform architecture

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3.1. General information

In this chapter we describe a system information of the Sequoia Mosaic 3000 PERSO.

3.2. The platform architecture

SM3000 PERSO was created using C programming language. Any contactless card reader compatible with Windows is enough to issue payment key fobs, bracelets, rings or watches. To issue payment cards, you need embossers produced by: Entrust DataCard, CIM, MATICA, Magtek.

3.2.1. Applications Supported

- MasterCard
- M/Chip Select
- M/Chip Lite
- M/Chip Advance
- CAP
- PayPass
- VSDC
- PayWave MSD/qVSDC
- DPA
- NPCI
- Rupay
- Other EMV Common Payment Application
- Java Cards
- Magnetic Stripe
- Magnetic Stripe with Pin, iCVV
- Common Personalization
- TLV Smart Card field

3.2.2. Operating Systems

Windows 7 Professional (32 bit and 64 bit)

Windows 8 (32 bit and 64 bit)

Windows 9 (32 bit and 64 bit)

Windows 10 (32 bit and 64 bit)

Windows XP

3.2.3. Minimum Requirements

- 2.58 GHz or faster 64-bit (x64) processor
- 4 GB RAM
- Minimum screen resolution of 1280 x 1024
- 2 GB free hard drive space is required

The system configuration may need to be adjusted depending on the number of personalization modules and the smart card application profile.

3.2.4. Database

- SQL Server 2012
- SQL Server 2012 Express
- SQL Server 2014
- SQL Server 2014 Express
- SQL Server 2016
- SQL Server 2016 Express
- SQL Server 2017
- SQL Server 2017 Express

3.2.5. Host security modules

SM3000 PERSO requires a Host Security Module (HSM) manufactured by Thales, FUTUREX, SafeNet. It is able to connect to these cryptographic devices both via COM port and TCP / IP protocol.

3.3. Encryption standards and security

To prepare chip data according to the EMV standard, the system allows you to independently generate the issuer's RSA keys, application files for obtaining certificates both in the VISA / MasterCard format and in the MIR format. Verify the authenticity of signed issuer certificates, as well as certificates of public keys of payment systems VISA / MasterCard / MIR.

ALFEBA uses the encryption standards for the SM3000 EPS, presented in the Table 3.3.0.0.

Table 3.3.0.0. The SM3000 IAP encryption standards

Purpose	Encryption algorithm
Data encryption	3DES, RSA

The safety of the results of the work of the platform is ensured on the one hand by hardware, using HSM, and on the other hand by software. Critical data is stored encrypted in the database. The transfer of the file with the results of data preparation between the parts of the software package is carried out in encrypted form. The transfer file has its own non-distributable format. At this stage, both hardware (using HSM) and software encryption are possible. RSA and Triple DES algorithms are used as encryption algorithms. For the software package to work, registration of at least two users is required. The ‘root’ user has rights to configure, install and control the system, but does not have rights to perform work orders. The ‘operator’ user has rights to perform work orders and create reports, but does not have rights to change settings in the system. To get started, users must register with a username and password.

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Chapter 4. SM 3000 PERSO overview

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4.1. General information

Banks and financial institutions need today a personalization management tool that can help the customer service at the presence for the physical products or on-line for the virtual/ digital ones.

SM3000 PERSO offers solutions for the data preparation and personalization jobs of the physical and virtual card based and linked products: contact/ contactless cards, mag stripe cards, rings and bracelets, watches.

4.2. Functional features

4.2.1. Data preparation jobs

- Input data for the system are text files - applications received from the Banking core, Back-office or other external platform through the integration module.
- The system allows to produce PIN envelopes (printer is required), to calculate values for the entire set of security values and supports PIN creation jobs through the web, ATM and phone stations.
- To prepare chip data according to the EMV standard, the system allows you to independently generate the issuer's RSA keys, application files for obtaining certificates both in the VISA / MasterCard format and in the MIR format. Verify the authenticity of signed issuer certificates, as well as certificates of public keys of payment systems VISA / MasterCard / MIR.
- The system allows you to manage personalization profiles to determine the list of optional data involved in personalization. And also to determine the value of these independent from the cardholder data.
- Produces a complete block of data required to personalize a payment instrument. The results are displayed in a proprietary format and encrypted with an intra-system key.

4.2.2. Personalization jobs

- The input data for the system are encrypted files produced by the data preparation module.
- It is possible to adapt the system to the use of a personal file prepared by other systems installed at the client (for example: the card personalization system remains with the client as it is, and only SM3000 PERSO is deployed to personalize non-standard payment form factors with adaptation to the existing personal file formats).

4.2.3. Statistics and management jobs

The system makes its own accounting of processed cards and stores the production results, has an integration tool kit to work with external platforms for the data input.

4.2.4. Timeliness

SM3000 PERSO quickly generates suspicious activity alerts using its internal models to reduce the time loss of the data preparation or card production jobs.

4.2.5. A wealth of functionality

The presence of functions based on internal algorithms and PCI DSS and PIN DSS compatible rules is a distinctive feature of SM3000 PERSO. It provides a rare opportunity to prevent fraud before it happens during the personalization processes.

4.2.6. Adaptability

SM3000 PERSO is tuned to new application development possibility for the customer choice. New formats and applications can be easily developed by ALFEBA and it partners to target new types of products for the modern card industry.

4.2.7. Ease of use

SM3000 PERSO has a user-friendly user modern interface with the help of which the task flow is managed, which increases the efficiency of analysts' work and greatly reduces the training time for new employees. The platform also maintains statistics on the status of the task queue, analyst performance, and model, providing management with valuable additional information.

4.2.8. Interoperability and modularity

SM3000 PERSO interacts with the institution's existing banking core or back-office platforms, or with an external processing system. Its open architecture allows it to run on Microsoft Windows or AWS AMAZON cloud solutions. The modular organization of SM3000 PERSO allows institutions to implement the solution that best suits their needs, while maintaining low operating costs and maximizing the use of available functionality.

4.2.9. Open database architecture

SM3000 PERSO is based on an open database architecture that the user can extend as needed. The product can integrate with external applications, which allows synchronizing their work with SM3000 PERSO actions.

4.2.10. Custom functions

Once SM3000 PERSO is installed and configured, facility staff can easily view alerts, track transaction activity, monitor work, and collect performance statistics.

To view statistics, analysts simply log into SM3000 PERSO through the user interface to access the needed job information for the statistics needs or to take the necessary action.

4.3. Monitoring and detecting points of compromise

Copying (Skimming) data from a magnetic stripe card or the card data theft have become the fastest growing type of fraud affecting issuers of debit and credit cards during the personalization jobs. So that SM3000 PERSO provides a set of features that enable financial institutions to effectively combat this type of fraud, reducing losses and other related costs. The great advantage of SM3000 PERSO in this regard is its ability of the differentiation of rights in different jobs areas with the integrity of the production process.

This allows a financial institution to avoid such an expensive measure as both hiring extra specialists for the personalization jobs and cards re-issuing, only on the basis of the fact that they at some point came under suspicion of compromise or production error.

Chapter 5. Attachments

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5.1. Terms and abbreviations

3

3D-Secure Is an XML-based protocol designed to be an additional security layer for online credit and debit card transactions.

A

API Application programming interface

Authorization Is an approval from a card issuer, usually through a credit card processor, that the customer has sufficient funds to cover the cost of the transaction.

B

BO Back-office, of the SM3000 IAP, where the Operator’s employers work to maintain the Platform jobs, as Merchants, Transactions, Agents, Reports and file exchange with a main Processing system.

C

Cardholder A person who owns a card, such as a cardholder of a credit card or debit card

ChargeBack Is a return of money to a payer. Most commonly the payer is a consumer. The chargeback reverses a money transfer from the consumer's credit card. The chargeback is ordered by the bank that issued the consumer's payment card.

F

FE Front-end, of the SM3000 IAP, where the cards authorizations are processed in on-line mode

I

IAP Internet acquiring platform. The Platform created as a separate application for the Payment operators and Payment facilitators.

ID Identification number (f.e. transaction ID or Merchant ID)

Incoming-File The data file, that Platform receives from the Bank’s processor

L

Light API The interface to connect the Merchant’s own platform to the SM3000 IAP

M

MasterCard MasterCard International payment system

Merchant	A legal entity carrying out trading activities on the Internet using the software provided by the system
MPI	Merchant Plug-in

O

Operator	Payment operator or Payment facilitator, that uses SM3000 IAP
Outgoing-File	The data file, that the Platform sends to the Bank’s processor

P

PAN	Primary account number, or simply a card number, is the card identifier found on payment cards, such as credit cards and debit cards, as well as stored-value cards, gift cards and other similar cards.
Payment Gateway	A hardware-software complex developed and supported by a payment system that automates the acceptance of payments on the Internet.
Payment System	Payment system between users, financial organizations and business organizations. Allows you to pay, bills and purchases, transfer money.

R

Refund	A process in which a customer returns a product to the original retailer in exchange for money previously paid
Reversal	The operation of crediting funds to the payer's account as compensation for the cancellation of the provision of the service or the poorly rendered service.

S

Service	Merchant’s service entry, registered for each MCC. It has its own parameters, fees etc.
SM3000	Sequoia Mosaic 3000. The processing platform of the cards issuing and acquiring processing, ATMs, POSs, e-commerce and m-commerce processing
System	A payment system that allows you to transfer money, accept payment for goods and services through various payment gateways.

T

Transaction	Within the framework of this service, a completely completed data exchange operation with a payment system, including debiting / crediting funds to an end user account.

V

VISA	VISA International payment system

5.2. External documents references

The manual doesn’t have any link to the other documentation of the SM3000 processing platform.

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